



# Lessons Learned & Success Stories – September to November 2017 Report

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The NBACC Lessons Learned and Success Stories Summary serves to reinforce a strong culture of safety and accountability by promoting consistent reporting of mishaps, establishing strong lines of communication with the safety department, supporting a learning environment by allowing others to learn from reported events, and tangibly demonstrating NBACC Leadership’s commitment to safety, accident prevention, and continuous improvement.

## SUCCESS STORIES:

1. A staff member contacted Health & Safety (H&S) after walking past a liquid nitrogen tank and noticing excess icing on the top and bottom of the tank. A member of H&S and Environmental Operations (EO) went to look at the tank and confirmed there was a potential leak causing the icing. The EO group moved the tank to the outside of the building due to the potential leak.
2. Two staff members were replacing a refrigerator in a biosafety level (BSL)-2 laboratory after a footprints ticket had been submitted for the removal of a defective one. Before moving the defective fridge they noticed there was no decon form associated with it. They contacted the Laboratory Space Manager (LSM) and confirmed that the fridge still needed to be decontaminated and a form completed before the fridge could be removed from the lab.
3. During testing, a technician noticed condensation on the drum of a piece of equipment. The technician decided to check the treads and rollers to make sure it didn’t affect the rotation, and during the inspection, noticed a piece of the tread had peeled away from the metal frame and also noticed some cracks in the tread. While this issue was most likely occurring for some time and probably would not have affected the experiment, the technician decided to terminate the experiment to avoid further damage to the equipment and to prevent any potentially unsafe situation that might have arisen. This stop work prevented a potentially significant event from occurring.
4. While using a stairwell in the building, a staff member noticed that a bat had gotten indoors. The staff member notified H&S to assess the situation. Only rabies vaccinated staff were allowed to be in the area during the bat’s removal, and no staff members were exposed to fluids, bites or scratches from the bat. The H&S team located a member of the Comparative Medicine Group who had all of the appropriate equipment on hand to catch the bat and release it safely outside.
5. A staff member reported (after normal business hours) that an autoclave door was open with autoclaved trash still inside. They immediately called to report the incident. Autoclaves are considered confined spaces and their doors should remain closed at all times when the autoclave is unattended.
6. A Facilities Maintenance Engineer observed water had been running into the main drain lines for several hours. Discussion amongst facilities staff led to the realization that the draining water

correlated with Building Automation System (BAS) data indicating that the Effluent Decontamination System (EDS) tank was filling at a much faster rate than normal. Further investigation of the pipelines indicated that the source of the running water was a 3<sup>rd</sup> floor BSL-3 laboratory. EO staff had been performing routine chores in the lab and accidentally left an emergency eyewash running. The action of leaving an eyewash running resulted in filling an EDS tank faster than normal. Over time, this potentially could have resulted in an adverse consequence as the fill/cook/empty sequence would not have been able to maintain the demand. This is a success story due to the attentiveness of facilities personnel; the oversight was rectified before anything critical was affected.

#### **LESSONS LEARNED:**

1. Often things can move at a fast pace and important steps can be misunderstood or missed. Just because it was always done one way, doesn't mean there isn't a possibility it has changed over time. Always take a moment and step back and consider what is different, what may be a challenge, and to review Risk Assessments, SOP's, and Work Instructions. If there are questions or concerns when performing work, please remember that NBACC has a STOP work policy that can be implemented by anyone, at any time, without retribution.
2. Don't use your hands as tools! There are commercially available tools for almost any task, and products to protect your hands in most situations. Use work gloves and other personal protective equipment (PPE) to keep your valuable hands and fingers intact. Work gloves can be ordered and used in the lab, too. Just consult with H&S on how to best use and store your PPE.
3. Remember the people who come in the lab after you. Make sure you post all required signage, leave the lab stocked, and communicate with your coworkers.
4. It is very helpful to document when safety equipment, like a biological safety cabinet (BSC), does not function properly because such reports allow us to track the frequency and the severity of the problem. During this month, a BSC shut off it's down draft blower motor due to a low air flow alarm (across the face of the BSC). The low flow alarm is likely caused by slight changes in the pressure of a BSL-3 room and suite. Regardless of the cause of the problem, the BSC is malfunctioning and its performance has become unreliable. The lab space manager and the workers within this space have done an excellent job of tracking this BSC air flow alarms, and this month, the BSC was placed out of service until the issue can be more thoroughly investigated. The entire operation is safer because of the vigilance of these workers.

#### **EVENT SUMMARIES:**

1. **FIRST AID SUMMARY:** 09/14/2017; A staff member reported split skin from a hang nail while they were working in a BSL-3 lab. The competent medical authority (CMA) applied first aid and ruled no potential exposure.
2. **FIRST AID SUMMARY:** 09/19/2017; A staff member cut themselves while they were clearing ice away from a freezer in a BSL-2 laboratory with their gloved finger. The staff member was retrained to not use fingers to remove frost and ice from the freezers. The CMA applied first aid and ruled no potential exposure.
3. **FIRST AID SUMMARY:** 10/03/2017; A staff member sustained a finger cut while putting a box of gloves into a plastic box holder in a BSL-3 laboratory. The CMA applied first aid and ruled no potential exposure.

4. **OSHA RECORDABLE SUMMARY:** 10/05/2017; A staff member cut their finger in a BSL-3 laboratory while cleaning the back of a BSC at the conclusion of their work. The floor of the BSC was slightly bent which raised up the sharp back edge of the sheet steel which cut through two gloves and the skin of the staff member. The CMA ruled a minimal risk of exposure and disease. The staff member was placed on a fever watch for 10 days and was restricted from all lab work for 1 day. No fever developed within the 10 days.
5. **FIRST AID SUMMARY:** 10/06/2017; A staff member sustained a leg abrasion when they scraped their knee on a vent tube in an interstitial space. The CMA applied first aid and placed the staff member on a modified duty.
6. **FIRST AID SUMMARY:** 10/20/2017; A staff member sustained a skin abrasion when they scraped their finger on a light switch in a laboratory. The CMA applied first aid and placed the staff member on a modified duty.
7. **FIRST AID SUMMARY:** 10/25/2017; A staff member cut their finger while breaking a glass ampule of a reagent in a BSL-2 lab. The CMA applied first aid and placed the staff member on a modified duty.
8. **OSHA RECORDABLE SUMMARY:** 10/31/2017; A staff member cut their hand on an autoclave cart in a non-containment corridor. The CMA applied first aid and the staff member was restricted from all labs for two days.

#### **NEAR MISS SUMMARIES:**

1. **EQUIPMENT FAILURE SUMMARY:** 08/21/2017; A staff member reported that a waterproof bandage came off while they were washing their hands in a BSL-3 laboratory. The CMA ruled no potential exposure.
2. **SPILL SUMMARY:** 08/23/2017; A staff member reported that two drops of risk group (RG) 4 material leaked onto the floor of a BSC in a BSL-4 laboratory after the technician's hand accidentally hit the side of the BSC. The CMA ruled no potential exposure.
3. **LAB PROCESS FAILURE SUMMARY:** 08/31/2017; A staff member reported that a plate of RG3 agent was contaminated with a second RG3 agent from a sample that was processed through equipment previously used with the second RG3 agent. The plates were properly decontaminated for the expected RG3 agent, but this decontamination did not match the decontamination procedure for the second RG3 agent prior to their removal from the BSC. The CMA ruled no potential exposure.
4. **PPE FAILURE SUMMARY:** 09/01/2017; A staff member reported that their personal purified air respirator (PAPR) motor stopped running (due to a faulty battery connection) while they were in an ABSL-3 room. They held their breath and exited the room, and the PAPR battery was replaced. The CMA ruled no potential exposure.
5. **PPE FAILURE SUMMARY:** 09/11/2017; A staff member reported an outer glove tear (nitrile) while working in a BSC in a BSL-3 laboratory. The CMA ruled no potential exposure.
6. **PPE FAILURE SUMMARY:** 09/13/2017; A staff member reported a glove tear (nitrile) while working in a BSC in a BSL-2 laboratory. The CMA ruled no potential exposure.

7. **PPE FAILURE SUMMARY:** 09/19/2017; A staff member reported an outer glove tear (nitrile) while working in a BSC in a BSL-2 laboratory. The CMA ruled no potential exposure.
8. **PROCEDURAL FAILURE SUMMARY:** 09/22/2017; A staff member reported that they had walked into a room without a respirator on when one should have been worn. A low-dose agent was in use overnight in the room, but the sign requiring respiratory protection equipment (RPE) for entry into the room had not been posted. Since the agent was in sealed PCR plates, the CMA ruled no potential exposure.
9. **SPILL SUMMARY:** 09/27/2017; A staff member reported that they dropped a micropipette part onto their lap while working in a BSC in a BSL-4 lab. The worker was re-trained on how to work in the middle of the BSC while disinfecting micropipette parts. The CMA ruled no potential exposure.
10. **LAB PROCESS FAILURE SUMMARY:** 09/27/2017; A staff member reported that another staff member was not wearing gloves while wearing their PAPR in a BSL-3 suite. The staff member not wearing the gloves was on a modified duty restriction from the CMA; however, they were not informed that they needed to wear gloves while also wearing their PAPR. The CMA was re-trained on communicating the need for gloves with this type of medical restriction.
11. **EQUIPMENT FAILURE SUMMARY:** 10/06/2017; A staff member reported that a BSC in a BSL-3 laboratory went into alarm while they were working with a RG3 agent. The staff member left the room initially after the alarm, called a Safety representative, and returned to the room in RPE to clean up the BSC which was placed out of service until further notice. The CMA ruled no potential exposure.
12. **SPILL SUMMARY:** 10/12/2017; A staff member reported that a permanent marker fell out of a BSC while they were working in a BSL-3 laboratory. CMA ruled no potential exposure.
13. **PPE FAILURE SUMMARY:** 10/16/2017; A staff member reported an outer glove tear (latex) while performing an inventory check in a BSL-3 laboratory (the inner glove was intact). The CMA ruled no potential exposure.
14. **PROCEDURAL FAILURE SUMMARY:** 10/18/2017; A staff member reported that they had walked out of a laboratory room without removing their lab coat. There had been no spills of material on the lab coat. The CMA ruled no potential exposure.
15. **SPILL SUMMARY:** 10/18/2017; A staff member reported that a plate containing newly inoculated RG3 agent caught on their sleeve and was knocked out of the BSC onto the floor of a BSL-3 laboratory. There were two other workers in the room at the time. The workers followed the spill procedure and left the room immediately. Although the strain of the RG3 agent was attenuated, the CMA ruled a low risk of exposure and disease and placed them on a 7 day fever watch. No fever developed within the 7 days.
16. **PROCEDURAL FAILURE SUMMARY:** 10/25/2017; A staff member noticed that they had not removed their lab coat prior to leaving a BSL-3 laboratory. There had been no spills of material on the lab coat. The CMA ruled no potential exposure. Since this was the second incident, the staff member was placed on escorted access only and a new training plan was developed for them to demonstrate competency before they can work in the BSL-3 unescorted again.

17. **PROCEDURAL FAILURE SUMMARY:** 10/30/2017; A staff member did not don safety glasses prior to working with infectious material in BSL-3. The CMA ruled no potential exposure.
18. **SPILL SUMMARY:** 10/30/2017; A staff member reported that an object fell out a BSC in BSL-3. The material that was being manipulated at the time was sterile. The CMA ruled no potential exposure

#### **OTHER OCCURRENCE SUMMARIES:**

1. **PROCEDURAL ERROR SUMMARY:** 08/07/2017; During an emergency alarm, the One Call system was initially not activated, which failed to notify one staff member working in a BSL-3 laboratory. The emergency alarm occurred prior to normal business hours.
2. **SECURITY FAILURE SUMMARY:** 08/15/2017; Two medical subcontractors were escorted into the Vivarium without access privileges in order to respond to a medical emergency. They secured access to this area after the event.
3. **PROCEDURAL ERROR SUMMARY:** 08/18/2017; A staff member reported that they wore earrings into the BSL-4 suit room. They immediately recognized the error and chemically decontaminated the earrings out of the suite.
4. **PPE FAILURE SUMMARY:** 08/31/2017; A staff member reported glove tear (nitrile) while using a calculator in a BSL-2 laboratory.
5. **PROCEDURAL ERROR SUMMARY:** 08/31/2017; A sample of RG4 material that had undergone an inactivation procedure and a sterility test was removed from the BSL-4 without a sterility certificate. The sample was brought out through a dunk tank and brought into the BSL-3 (unopened). The sample was then returned to the BSL-4 so that a proper certification could be documented. Staff were retrained on the proper procedure to remove sterile materials from containment suites.
6. **PROCEDURAL ERROR SUMMARY:** 08/31/2017; During a routine post approval monitoring of a risk assessment, it was noticed that (as stated in the project Risk assessment) a full 30 minute decontamination had not been executed during removal of materials from a BSC. After further discussion with the project leads, it was determined that a cursory wipe down with a bleach solution was acceptable. The risk assessment was revised for modification.
7. **PROCEDURAL ERROR SUMMARY:** 08/31/2017; A staff member wore a necklace into the BSL-4 cabinet lab inner change room. The necklace was surface deconned and removed.
8. **PROCEDURAL ERROR SUMMARY:** 08/31/2017; During a routine safety inspection of an ABSL-3 room, a staff member found six unlabeled syringes in a drawer loaded with an animal tranquilizer. The room was empty and had been prepared for a vaporous hydrogen peroxide (VHP) decontamination. The syringes were discarded and the staff retrained on VHP preparations and proper labeling.
9. **SPILL SUMMARY:** 09/27/2017; A staff member reported a spill of media with a fluorescent tracer in the Class III BSC in a BSL-4 cabinet lab. No agent work was taking place and there was no loss of negative pressure in the BSC.

10. **SPILL SUMMARY:** 10/03/2017; A container of Microchem Plus® spilled and partially came out of a BSC while a staff member was working in a BSL-2 laboratory. No infectious material had been opened yet. The spill was cleaned up and work resumed.
11. **EQUIPMENT FAILURE SUMMARY:** 10/06/2017; A staff member reported that several 15mL conical tubes had leaked their contents into their Styrofoam tube rack while they were stored in a BSL-4 freezer. The material was cleaned up and the tubes and racks were disinfected with Microchem Plus®. The cause of the leaking tubes is unknown.
12. **LAB PROCESS FAILURE SUMMARY:** 10/10/2017; A staff member reported that an autoclave had been left open with autoclaved trash left inside. The incident was reported and corrected.
13. **LAB PROCESS FAILURE SUMMARY:** 10/17/2017; A staff member reported that a micropipette robot dispensed several micropipette tips onto the floor of the BSC in a BSL-4 laboratory. The staff member had placed the sharps container in the wrong location.
14. **SECURITY FAILURE SUMMARY:** 10/17/2017; A staff member reported to the Responsible Official (RO) that two inventory items were incorrectly labeled (numbers were swapped) during initial labeling but not noticed until annual inventory. The issue was corrected and staff were reminded of the importance of independent verification when working with a witness on long term stocks.
15. **PROCEDURAL FAILURE SUMMARY:** 10/21/2017; A staff member reported that an autoclave went into alarm after it was determined that the load probe had not been placed prior to a liquid cycle. The staff member was reminded of the proper procedure.
16. **PROCEDURAL FAILURE SUMMARY:** 10/25/2017; A staff member reported that an eye wash/drench hose had been left running in a BSL-3 laboratory.
17. **PROCEDURAL FAILURE SUMMARY:** 10/31/2017; A staff member reported that they had mistakenly selected the wrong autoclave cycle for a run of RG3 material. The autoclave technician selected the correct cycle and the load was successfully sterilized.

#### **Document Definitions:**

**Event Summaries** – Any OSHA recordable mishap or first aid injury or illness.

**Near Miss Summaries** – Any mishap that requires a potential exposure ruling from the Competent Medical Authority (CMA) or represented a CDC Form 3 submission, or a potentially serious accident or incident that could have resulted in personal injury, illness, death, and damage to property or the environment, but did not occur due to one or more factors.

**Other Occurrences** – Mishaps that do not fit into the other two categories.

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